



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,573	01/18/2001	David Michael Bains	13DV13120	4682

30540 7590 01/30/2003

PATRICK R. SCANLON
PIERCE ATWOOD
ONE MONUMENT SQUARE
PORTLAND, ME 04101

EXAMINER

KIM, CHONG HWA

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SK

Office Action Summary

Application No.

09/761,573

Applicant(s)

BAINS ET AL.

Examiner

Chong H. Kim

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28,30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-20 is/are allowed.
- 6) ☒ Claim(s) 1-11,21-28,30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The Examiner acknowledges the Applicant's Amendment filed Dec 9, 2002 in response to the Office action made on Nov 6, 2002.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second solvent as recited in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 4 and 5 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 4 recites the steps comprising the soaking of the filter in a first solvent prior to the step of weighing the filter and then soaking the filter in a second solvent. However, it is not

Art Unit: 3682

fully supported in the description that such steps are taken to determine the level of the contaminants. The specification fails to describe soaking the filter in the second solvent after the step of weighting the filter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai et al., JP Patent 10170504 A.

Sakai et al. shows, in the Abstract, a system and a method of performing a clean check on a gearbox (compressor in refrigerator), the method comprising the steps of;

flushing an oil-based fluid through the gearbox and then through a filter 12;

weighing the filter to determine the weight of contaminants collected in the filter;

comparing the contaminant weight to a predetermined level, wherein the gearbox is acceptable if the contaminant weight is below the predetermined level;

wherein the steps are repeated if the contaminant weight is above the predetermined level; and

wherein the gearbox is a finally assembled, closed gearbox.

Art Unit: 3682

6. Claims 21, 22, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyle et al., U.S. Patent 5,964,318.

Boyle et al. shows, in Figs. 1 and 2, a system for performing a clean check on a gearbox having an inlet and an outlet, the system comprising;

a source F of an oil based fluid fluidly connected to the gearbox inlet 10;

a first filter 9 fluidly connected to the gearbox outlet 8;

a preliminary filter 13 fluidly connected between the source of an oil-based fluid and the gearbox inlet;

means 7, 12 for causing the oil based fluid to flow through the gearbox, the preliminary filter, and the first filter;

wherein the means for causing the oil-based fluid to flow through the gearbox and the first filter is a pump 7; and

a second filter 13 fluidly connected between the source of an oil based fluid and the gearbox inlet.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3682

8. Claims 1, 6, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al. in view of Sakai et al.

Boyle et al. shows, in Figs. 1 and 2, a method for performing a clean check on a gearbox, the method comprising the steps of;

flushing an oil-based fluid through the gearbox 2 and then through a filter 9;

determining the quality of the lubricant in the system;

flushing the oil-based fluid through a preliminary filter 13 prior to flushing the oil-based fluid through the gearbox;

wherein the gearbox is a finally assembled, closed gearbox;

but fails to show the determining steps that involve comparing the weight of the filter before and after; the filters being 3 micron collection filter; the oil being MIL-L-23699 oil; and flushing 50 gallons of oil at about 40 pounds per square inch.

Sakai et al. shows, in the Abstract, a system and a method of performing a clean check on a gearbox (compressor in refrigerator), the method comprising the steps of;

flushing an oil-based fluid through the gearbox and then through a filter 12;

weighing the filter to determine the weight of contaminants collected in the filter;

comparing the contaminant weight to a predetermined level, wherein the gearbox is acceptable if the contaminant weight is below the predetermined level; and

wherein the steps are repeated if the contaminant weight is above the predetermined level.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the oil quality determining method as disclosed by Boyle et al.

Art Unit: 3682

with the contaminants weight determining method as taught by Sakai et al. in order to provide a more accurate and convenient way of measuring, as described in the Abstract of Sakai et al., so that the system is provided with longer life expectancy.

As to the matter of the filters being 3 micron collection filter and the oil being MIL-L-23699 oil, it would have been obvious to provide the filter and the oil type of Boyle et al. with a 3 micron collection filter and MIL-L-23699 oil, since such a modification would have involved a mere change in the material used in the system for performing a clean check on the gearbox. A selection of known material based on its suitability for the intended use is generally recognized as being within the level of ordinary skill in the art. In re Leshin, 125 USPQ 416.

As to the matter of flushing 50 gallons of oil at about 40 pounds per square inch, it would have been obvious to apply the steps involving flushing 50 gallons of oil at about 40 pounds per square inch in Boyle et al. since it has generally been recognized that the specific flushing step involves optimization through routine experimentation, In re Boesch, 205 USPQ 215 (CCPA 1980); In re Svala, 70 USPQ 412 (CCPA 1946); or discovery of optimum ranges within prior art general conditions, In re Aller et al., 105 USPQ 233.

9. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al. in view of Sakai et al. as applied to claim 1 above, and further in view of Kodaira et al., JP Patent 09089638 A and Randolph, U.S. Patent 5,730,870.

Boyle et al. in view of Sakai et al. shows, as discussed above in the rejection of claim 1, the method for performing a clean check on a gearbox including the steps of weighing the filter

Art Unit: 3682

and comparing the contaminant weight, but fails to show the step of soaking the filter in a solvent prior to the step of weighing the filter, and soaking for 30 minutes or more.

Kodaira et al. teaches, in the Abstract, a method of measuring residual quantity of machining oil comprising a step of soaking a device in a solvent prior to a measurement of a filter in which contaminants in oil are obtained.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of performing a clean check on a gearbox of Boyle et al. in view of Sakai et al. by adding the step of soaking a device in a solvent prior the step of measuring as taught by Kodaira et al. in order to provide a more accurate means of targeted measurement so that the cost involved in maintenance can be reduced.

As to the matter of the step of soaking for 30 minutes or more, it would have been obvious to apply the steps involving soaking the filter in the solvent for 30 minutes or more in Kodaira et al. in view of Sakai et al., since it has generally been recognized that the duration in which the filter can be soaked involves optimization through routine experimentation, In re Boesch, 205 USPQ 215 (CCPA 1980); In re Svala, 70 USPQ 412 (CCPA 1946); or discovery of optimum ranges within prior art general conditions, In re Aller et al., 105 USPQ 233.

10. Claims 23, 24, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al.

Boyle et al. shows the system for performing a clean check on a gearbox, as discussed above in the rejection of claims 21 and 29, comprising the source having the oil-based fluid, the

Art Unit: 3682

filters, and the means for causing the fluid to flow, but fails to show the filters being 3 micron collection filter and the oil being MIL-L-23699 oil.

It would have been obvious to provide the filter and the oil type of Boyle et al. with a 3 micron collection filter and MIL-L-23699 oil, since such a modification would have involved a mere change in the material used in the system for performing a clean check on the gearbox. A selection of known material based on its suitability for the intended use is generally recognized as being within the level of ordinary skill in the art. In re Leshin, 125 USPQ 416.

11. Claims 25-28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al. in view of Randolph, U.S. Patent 5,730,870.

Boyle et al. shows, as discussed above in the rejection of claim 21, the system for performing a clean check on a gearbox comprising a source having the oil-based fluid, two filters, and means for causing the fluid to flow; but fails to show means for soaking the filter in a solvent, the solvent being mineral spirits or isopropyl alcohol, a second filter for passing the solvent through, and the second filter being 3 micron collection filter.

Randolph shows, in Figs. 1-10, a system for performing a clean check on a gearbox having an inlet and an outlet (inherent), the system comprising;

a source 10 of an oil based fluid fluidly connected to the gearbox inlet ;

a filter F fluidly connected to the gearbox outlet;

means (inherent) for causing the oil based fluid to flow through the gearbox and the filter;

and

Art Unit: 3682

further comprising means for soaking the filter in a solvent (as described in column 5, lines 17-25).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a means for soaking the filter in a solvent as taught by Randolph in the system of Boyle et al. in order to reduce the cost of maintenance by reusing the filter.

As to the matter of the solvent being mineral spirits or isopropyl alcohol, it would have been obvious to make the solvent of Randolph mineral spirits or isopropyl alcohol, since such a modification would have involved a mere selection of the material used in the system for performing a clean check on the gearbox. A selection of known material based on its suitability for the intended use is generally recognized as being within the level of ordinary skill in the art. In re Leshin, 125 USPQ 416. Furthermore, it would have been obvious to modify the solvent of Randolph with mineral spirits or isopropyl alcohol, since applicant has not disclosed that the solvent being specifically mineral spirits or isopropyl alcohol solves any stated problem or is for any particular purpose other than just dissolving the oil and the contaminants, and it appears that the soaking of the filter in a solvent to dissolve the oil and the contaminants therein would perform equally well with any other known solvents that dissolve the oil and the contaminants.

As to the matter of the second filter, it would have been obvious to provide a second filter to further extract contaminants in the solvent in Randolph so that the solvent can be reused, since such a modification would have involved a mere addition of a device that functions essentially the same as the first filter used in the system for performing a clean check on the gearbox. A duplication of parts is generally recognized as being within the level of ordinary skill in the art. In re Harza, 124 USPQ 378.

Art Unit: 3682

As to the matter of the second filter being 3 micron collection filter, it would have been obvious to provide a 3 micron collection filter in both Boyle et al. and Randolph, since such a modification would have involved a mere change in the material used in the system for performing a clean check on the gearbox. A selection of known material based on its suitability for the intended use is generally recognized as being within the level of ordinary skill in the art. In re Leshin, 125 USPQ 416.

Allowable Subject Matter

12. Claims 12-20 are allowed.
13. The following is a statement of reasons for the indication of allowable subject matter:

Neither prior art of record nor references teach a method of performing a clean check on a finally assembled, closed gearbox, comprising the steps of flushing oil through the gearbox and a first filter, soaking the filter in a solvent, flushing the solvent through a second filter, weighing both filters, and comparing the weight before and after to determine the level of contaminants to see if the gearbox is acceptable or not.

Response to Arguments

14. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 3682

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gearbox having filter with weight determining method.

Lundquist, U.S. Patent 6,152,978

Fluid flowing diagram with pump and two filters.

Hardy et al., U.S. Patent 5,299,449

Gearbox having oil filter.

Libertini, U.S. Patent 4,253,953

Peralta, U.S. Patent 5,372,219

DeWachter, U.S. Patent 5,567,306

Bedi, U.S. Patent 5,900,155

Dewhirst et al., U.S. Patent 6,206,653 B1

Zager, U.S. Patent 6,328,132 B1

Mineral spirits as solvent for lubricant oil.

Osmanski, U.S. Patent 5,698,774

Filter cleaning method using solvent.

Ferguson et al., U.S. Patent 3,566,892


Garris, U.S. Patent 5,776,876

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (703) 305-0922. The examiner can normally be reached on Monday - Friday; 9:00 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

chk
January 24, 2003


CHONG H. KIM
PRIMARY EXAMINER